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ABSTRACT

The Desire, Ability, Means, and Need (DAMN) Cycle is a useful paradigm for understanding the lifelong learning framework in Singapore. The cycle suggests that, for learning to occur, students must have a desire and an ability to learn, including inquiring minds and higher order process skills; the means must be provided through a well-defined educational infrastructure and appropriate teaching models; and a perceived need must exist for education or training. In Singapore, the educational system and societal pressures lead students to desire success in examinations more than learning itself. This issue is being addressed by modifying the examination system, trimming school curriculum, and increasing the use of information technology in the classroom. Students' impressive achievements in school performance may also rest merely on exam-smart skills rather than true cognitive intelligence. As a result, structured programs have been implemented that require utilization of analytical skills that prepare for higher education. The means for lifelong learning is being provided in the country through programs that promote learner-centered approaches and the teaching of thinking skills. To fully implement lifelong learning, Singapore should develop regional cooperation and a systems approach to maximize resources; focus on both national and international contexts; and address problems related to parochialism, assessment benchmarks, and funding sources. Contains 39 references. (YKH)

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Lifelong Learning: The Whole DAMN Cycle - A Singapore Perspective

Daphne Yuen Pan

In: Lifelong Learning: Policies, Practices, and Programs

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Lifelong Learning: The Whole DAMN Cycle — A Singapore Perspective

by Daphne Yuen Pan

There is growing awareness of the limitations of the traditional 'front-end' education and learning model. With its 'life phase approach' it imposes fairly rigid compartmentalising of learning and working life, and ignores the mutually reinforcing states of being and becoming that characterise, or should characterise, human existence. There is also concern that this inflexible model not only does not maximise human potential but it subverts the capacity and desire for learning and growth. In the effort to correct this, much has been done to put in place lifelong learning systems involving national initiatives and international cooperation. But top-down policy decisions and actions, while undeniably important, are only part of it. This paper reiterates the old Chinese proverb that it takes two hands to clap. Effective and sustained lifelong learning demands both intrinsic and extrinsic inputs. Indeed, it involves the whole DAMN cycle: Desire and Ability to learn on the part of the learner, the Means to support learning, and perceived Needs to prompt all these. As in the learning cycle, the components are equally weighted and linked in an organic sequence that dispenses with fixed starting or ending points.

INTRODUCTION

We are too ready to confuse education with learning

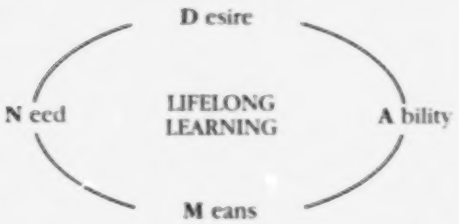
> (Attributed to a participant at the Centre for Educational Research and Innovation conference on "Learning Beyond Schooling", OECDa, 1995, p. 15.)

Lifelong education has been defined as "a set of organisational, administrative, methodological and procedural measures" (Knapper & Cropley, 1985, p. 18), while lifelong learning describes "the habit of continuously learning throughout life, a mode of behaviour" (Ironside, 1989, p. 15). The former might be said to refer to a set of extrinsic, supply-oriented factors which identify the needs and provide the means, while the latter is intrinsic, demand-oriented and heavily dependent on learner motivation and ability. Obviously, it is important that there be a fine balance of the two in order to generate synergy and productive outcomes.

> *...rapid change in the nature both of supply and of demand creates the risk that there will not be a good match between them. On the one hand provision of education and training cannot on its own create willing and effective participation; on the other, potential or actual demand of new kinds of provision may go unmet. There is a particular need to avoid an excessively "supply-led" concept of provision — courses and opportunities need to be sensitive to the needs and desires of learners, and not be based simply on new technological possibilities, the ideas of suppliers or their institutional interests.* (OECD, 1995a, p. 11)

By and large, there has been greater concern with the extrinsic rather than the intrinsic, with what is taught rather than how it is learnt. Syllabus and curriculum reviews are fairly commonplace practices and these tend, more often than not, to be prompted by learner-led considerations; Friere's (1972) "pedagogy of the oppressed" is a relatively new proposition. However, educators are increasingly acknowledging the relevance of learning theories and the centrality of the learner in the learning process. At the risk of belabouring the obvious, it is worth restating that in order for learning to occur, there must be the desire and the ability to do so. Only then will meaningful use be made of the "provision of education and training". Holistically, lifelong learning must be predicated on the whole DAMN cycle.

The DAMN Cycle



Desire

Why do people learn? Answers include instinct, intellectual needs, and the will to achieve. The desire to learn, then, is an innate tendency and, left to themselves, people will naturally pursue learning unless otherwise conditioned. Regrettably, there are forces at work that blunt or crush this desire. For instance, if learning is made to be a painful experience, then the operation of 'psychological hedonism' — the desire to seek pleasure and avoid pain — will predictably curb interest in learning. The association of "pain" with learning is not uncommon, and may be traceable to the "no pain - no gain" ideology which, fortunately, many now think highly dubious. Suffering may or may not be good for character-building but it certainly does little to perpetuate learning. On the other hand, positive learning experiences develop self confidence and keenness for further learning.

Another de-motivating force has been identified as the shifting of control from the learner to some external authority. If learners have little or no say in what, how, when and why they learn, but are instead forcibly programed to go through the motions in conformity with externally imposed purposes and criteria packaged in ironclad curricular structures and classroom practices, it is also predictable that self-motivation will wither from disuse. Knowles (1984) argues for the andragogical model for the adult learner. This focuses on the learner, including motivation, orientation, readiness to learn and experiences, and there is no reason why this should not be adapted to school pedagogies. More so than with adults, children need to be presented with an attractive and supple learning model, one that is responsive to varied learner needs and reinforces a positive self concept by empowering the learner, thereby nurturing self direction that makes autonomous and continuous learning possible.

Yet another major obstacle is our culture of achievement which rewards success and allows little margin for failure. Ironically, the emphasis on excellence and high performance, because it has engendered a low tolerance for failure, discourages exploration and risk-taking and saps the vitality of the inquiring mind. An educational system heavily underscored by rigid, summative norm-referenced assessment, privileges some at the expense of others, and marginalises the achievement of those on the wrong side of the bell curve. A student who scores 10% is a failure rather than someone who deserves recognition for a 10% success. Little wonder that students soon learn to be more concerned with grades than with learning, more driven to deliver what is wanted than pursue what excites their intellectual curiosity. They begin schooling full of question marks and end with a full stop. George Bernard Shaw remarked wryly that schooling functions as an interruption to education. More fatally, it may go beyond interruption, stifling all interest so that learning is not resumed as a lifelong activity. First and foremost, lifelong learning depends on stimulating the mind, enhancing motivation to learn, and equipping individuals with foundation skills to do so.

Ability

How do people learn? Cognitive psychologists such as Bruner, Ausabel and Piaget stress the learner's consciousness; learning is not merely receiving information, but making sense of it. It is not a 'spectator sport' and students need to be actively engaged in the learning process. Hence, the teaching-learning transaction is essentially dialogic; learning does not automatically occur when the teacher teaches. The logical paradigm shift from teacher-centredness to student-centredness has important implications for instructional theory and strategies. There are obvious limitations to traditional pedagogies which are prescriptive and enforce passive reception.

> *If children grow up considering knowledge to be something that is merely handed down by teachers, for reasons that are somewhat obscure to the student, they are far less likely to continue learning in adult life than if learning is seen as a voluntary voyage of discovery.* (OECD, 1995a, p. 16)

To effect such epistemological and paradigm shifts requires a change in the traditional balance of power where authority is vested in the teacher. Students have to be enabled to participate in and take responsibility for their learning. Teachers have to be aware of the needs, interests and backgrounds of students, and serve not simply as content specialists but most importantly as facilitators who give support and encouragement, listen to learners, and provide access to relevant tools and resources. To facilitate learning, a conducive learning environment is needed. This involves various aspects of the teaching/learning process, including curricula, instructional modes, and assessment procedures.

For independent, lifelong learning, students for their part need to develop an inquiring mind that will prompt them to question and search, as well as higher order process skills which will enable them to synthesise, evaluate, adapt and apply the knowledge they acquire. Students must learn to think critically, creatively and independently. They have to be trained to be open-minded, to develop tolerance for the risks of discovery learning, to be able to formulate and re-formulate problems, and to generate creative answers and evaluate them critically and imaginatively. Most important, they have to learn to learn so that they can continue to learn if they are to respond intelligently to the exponentially increasing knowledge in our rapidly changing world. As Carl Rogers noted (Entwistle & Hounsell, p. 155),

> *The most socially useful learning in the modern world is the learning of the process of learning; a continuing openness to experience and incorporation into oneself of the process of change.*

Ultimately, to function effectively in a fast-paced environment individuals require more than conventional intelligence — *practical intelligence* and *emotional intelligence* are additional dimensions that have been much highlighted in recent years.

Means

A well designed infrastructure supports the growth of a vigorous learning society. Putting in place such an infrastructure is substantially a public-sector commitment, though there are other, albeit smaller, players. Community groups and professional organisations have, to some extent, been providing lifelong education on a more informal basis. Increasingly, too, employers see that it is in their interest to participate in the provision of lifelong learning opportunities so as to maintain a high quality workforce.

By and large, however, the government's role is central and it is twofold: policy-making and resource provision. Policies must be context-specific and agenda-dependent, and variations are to be expected across geographical and political borders. Nevertheless, there are some common denominators, one of which is the creation of a well articulated learning system. For a start, educational institutions need to become more 'open', more 'flexible' and more 'learner-friendly'; the currently predominant monolithic and chronological 'life phase' approach will not easily accommodate self-directed and lifelong learning. Ideal would be a model that provides

access to learning any time, and in any place.

As might be expected, this would be a model of considerable sophistication where balancing a desirable level of flexibility with a practicable degree of structure and quality assurance would be critical. Administrators and academics will need to think long and hard, then work together to develop and refine a system that is appropriate for particular institutions. Alternative pedagogies/andragogies might be investigated to make alternative delivery modes, such as distance, individualised, and resource-based delivery, not only efficient but also effective.

Models will vary in degrees of complexity but, basically, there are components which might, for convenience, be loosely described as hardware and software. The hardware denotes the delivery system, including the facilities and technology. These are quantifiable, expensive and high profile, and have generally attracted most attention. There have been rapid developments within the past decade in the range of media, including broadcast transmission via satellite/cable, electronic networks, dedicated networks on the information superhighway to provide Internet-based and Web-based resources, tele/video conferencing, interactive multimedia, and CD-Rom. But, the warning sounded in the introduction to this paper must be borne in mind:

> *...courses and opportunities need to be sensitive to the needs and desires of learners, and not be based simply on new technological possibilities, the ideas of suppliers...* . (OECD, 1995a, p. 11)

The 'software' is just as important, if not more so, and includes a variety of resources: the instructional materials and its presentation/presenter. Promoting lifelong learning is not merely thrusting information at learners. Attention needs to stay sharply focused on the deployment of methodologies that will facilitate learning, and help students evolve strategies for their own learning. Learning theories derived from cognitive psychology — for instance, the suggestion that knowledge is best received when offered in some coherent and hierarchical sequence (Ausabel, 1960; Gagne, 1970) — have great import for educators.

Teachers must keep in mind that for true mastery, learning must be active and meaningful, and learner preferences and expectations must be recognized and incorporated into the process. Because learners differ and because they learn in different ways (Pask, 1976; Marton & Salijo, 1976), methods and materials must be adapted to different cognitive processes. In an age where knowledge proliferates and is easily available, the teacher's task is not just to supply it; the value-added function consists of enabling students to construct meaning and to continue to process information on a lifelong basis. Hence, however advanced the technology, it is inadequate without the human input required to design and develop an intelligent instructional package.

Re-orientating curriculum and course design will also be necessary. With interdisciplinary approaches gaining currency, exposure to broad-based education and cross-curricular skills is logical. And as the primary goal is no longer information transfer, the concern should no longer be to pack the curriculum with as much content as possible. Research has confirmed what might be logically inferred: excessive material will allow little opportunity for reflection and encourage surface-level

learning (see Marton & Salijo, 1976). Certainly, some disciplines are more fact- and skill-based than others, and in these students may justifiably be required to have certain core competencies and be familiar with a basic corpus. There is no convincing argument, however, for students to commit it to memory since technology has made information so readily accessible.

All this, in turn, has implications for assessment: tests and examinations should not focus on recall; rather questions should be designed to demand critical thinking and intelligent application. Increasing learner control over assessment through such means as self evaluation and peer evaluation will also help to reconceptualise roles and demystify examinations. Further, there are implications for the way courses are designed. For instance, while the teacher-dominated lecture mode may be efficient for information transmission, it may be less so for stimulating reflective learning. More appropriate alternatives need to be exploited.

Need

That it is imperative to make concerted efforts to promote lifelong learning hardly needs to be argued. What was a radical proposal in the sixties has become an accepted fact. The rapid changes of the past decades — globalisation, the shrinking world, the shift to the service economy and market demands for adaptability to new conditions and products, redundancy of unskilled labour — clearly signal that the challenges ahead will be extremely exciting and the pace even more dynamic.

With the accelerated growth and obsolescence of information, it is essential that people have the skills that will enable them to continue to learn throughout their lives. It has been suggested that university degrees have a limited shelf life and that they should be re-validated periodically. Among others, the Organisation for Economic Cooperation and Development (OECD) has emphasised the need for the provision of continuing professional education for highly-qualified personnel (OECD, 1995b).

In effect, the needs of the 21st century demand a shift to 'recurrent education': the "lifelong process consisting of discontinuous, periodic participation in educational programs aimed at gradually dissolving the blocks of compulsory education and working life" (Candy & Crebert, 1991, p. 6). No longer is lifelong learning a textbook concept; it has become a necessity, with social, economic and political ramifications. The shrinking world, the breaking down of boundaries, the interplay of market demands and the operation of a more global economy all mean that, in education, as in other spheres of life, cooperative effort among nations — and especially those of the APEC community — is a priority.

LIFELONG LEARNING: A SINGAPORE PERSPECTIVE

The DAMN cycle is a useful paradigm for understanding and appreciating the lifelong learning framework not only in a region but also in a nation.

Desire

Much has been said about the Asian cultural bias with its high regard for authority and education and the consequent influence on learning. Within the traditional mas-

ter-apprentice relationship, the learner is socialised into passivity and authority-dependency. In a society such as Singapore, which is built on meritocracy, Darwinian natural selection manifests itself in a rather ruthless educational system of essentially one-try learning, streaming on the basis of examination scores which may or may not accommodate individual aptitude and interest, and great pressure to perform on and to demand. Formal educational qualifications loom large and certification by examination is crucial. A profile of the Singaporean student tends to show these characteristics: passive, reward-driven, highly but largely extrinsically motivated, with success in examinations rather than cognitive drive being the major motivational force. These students tend to be surface-level processors who are selective about what is learnt, concentrating their efforts on what is within the syllabus and examinable (see Wee & Huan 1991; Chang, 1994). They are unwilling to take risks or engage in discovery and independent learning.

It has also been pointed out that this relentless pressure "often makes school—and studying—a monumental pain.... The worst part may be that [students] become permanently turned off learning" (Nurturing Excellence, 1997). What can be done to redress this? Measures include clarification of educational aims/objectives, re-formulation of assessment procedures, and re-definition of incentives. Most fundamental, learning must be presented as an enjoyable experience. Students should be stimulated and be provided with learning milieus that encourage them to explore and stretch their cognitive and affective boundaries. The curriculum should be challenging in the real sense of the word, not merely as a euphemism for stultifying pressure.

That the issue is being addressed is confirmed in a statement by Education minister, Lee Yock Suan (see Leong, 1996, p. 17): "my vision is that every child maximises his potential, acquires sound values and good discipline...." He proposes that this be achieved by modifying the examination system (introducing open book examinations and putting more emphasis on continual assessment and project work), trimming the school curriculum, and through greater use of information technology in the classroom. These initiatives reflect a shift in focus from teaching content to promoting learning. If the schools succeed in nurturing the desire to learn, students will bring this mindset into tertiary education where it can be reinforced so that they will continue learning throughout their lives.

Ability

Last year, more than 800 students from the top five junior colleges in Singapore scored four distinctions each at the GCE A Level examinations and in the premier Raffles Junior College. More than one in three students obtained straight A's. Even Oriental modesty will not prevent the claim that this is impressive. Undoubtedly, Singaporean students are very able, and hardworking; but questions remain. "Do more A's mean brighter students?" (see Nirmala & Mathi, 1996, p. 2). This question has been sporadically raised and, increasingly, the view is being offered that they are "just more exam-smart". The students themselves say, "You can mug your way to an A as very few questions need analysis." If this is the case, then students are only being sensible when they focus on high scores rather than the unrewarding activi-

ty of thinking.

Their addiction seems to be an adaptive strategy, a form of learnt helplessness practised for expedience. However, they have been stereotyped as rote-learners. The opinion of one don, that undergraduates have "to be taught to think" and "lecturers still had to play nursemaid to the students" (Nirmala, 1995, p. 24), is by no means exclusive. Regardless, the following student response is illuminating:

> *Such criticisms distress not because they are untrue — though like all generalisations they have limited validity — but because they are unjust in not taking into account the circumstances and realities within which the Singaporean student has to operate. May I venture to present the student's case? ... This species is not without intellectual curiosity; it does think and would probably do so more publicly if the impression received were not that such an activity is uncalled for, if not unseemly.* (Lim, 1995)

This seems to be borne out in the recent TIMSS (Third International Mathematics and Science Study) survey which found that not only did Asian students secure the highest mathematics scores among 41 of the world's most developed nations, they achieved this because they were able to think through and apply underlying concepts (Nirmala, 1996, p. 1). That said, the fact remains that, in the words of one student (Yap, 1988, p. 5):

> *[There is a] huge expenditure of time on revision, practice and tuition....What a student learns and knows becomes less important than how well he does in an examination....It is easy, under such pressure, to succumb to the 'mugging' techniques so effectively employed by thousands of predecessors....(and) lose sight of the aim of real education.*

Hence the decision at the National University of Singapore (NUS) to provide some induction to tertiary education through a structured program that will ensure undergraduates have the necessary study skills to become more effective learners equipped to deal with the additional and rigorous demands of higher education. The Faculty of Arts & Social Sciences has introduced a credit-earning Faculty Enrichment Module for all first year students, and students in other Faculties are offered the University Foundation Module, a smaller-scale, self-study guide. More important is orienting the students' mindsets so they become reflective and self-directed learners. Speaking at a recent convocation ceremony, NUS's Vice Chancellor Lim (1996) noted that what NUS seeks to produce are graduates with "an enquiring and analytical mind, capable of lifelong independent learning...able to cope with the information explosion and many other rapid changes... ."

It is disturbing to note in the 1993 National University of Singapore / Nanyang Technological University graduate survey, merely "a handful (5%) [felt] that they had been helped to develop critical thinking and acquire analytical skills". If this is so, there is a need for vigilance in ensuring the attainment of higher-order skills and the achievement of longer-reach goals because higher education, especially, must serve

more than the functionalist end of training manpower. Indeed, it should stimulate intellectual curiosity, and train individuals to think independently, reflect critically and make sound judgments. Implicit in this capacity for introspection and reflexivity is the recognition that all claims to knowledge may be subject to further and higher level investigation (see Popper, 1975; Lakatos, 1977; Habermas, 1978; Wittgenstein, 1978; Lawson and Appignanesi, 1989) and awareness that learning is not finite but open-ended. It must be communicated to students that learning does not stop with formal schooling but has to be a lifelong habit.

Means

Various strategies have been implemented to heighten such awareness and to help learners acquire the lifelong habit. The Ministry of Education (MOE), for instance, has launched CORT (Cognitive Research Trust), a thinking skills program, and actively promoted the teaching of thinking skills.

At NUS the implications of more student-centred approaches have been variously translated. Since 1994, most of the faculties have moved to a modular system in order to exploit a more flexible academic structure which allows for some self-pacing in learning. Apart from periodically reviewing and revising the curricula to ensure relevance and currency, there is also the move to make it 'lean and mean'. At a press interview Vice Chancellor Lim indicated that the curriculum reduction may be as much as 30% to encourage "less book-learning, more self-study" (NUS will cut, 1996, p. 3). More generally, Lim (1996) pointed out that,

> *Transmission of knowledge per se...will recede in importance as multimedia and information technology become alternative effective purveyors of knowledge... . (We aim to) train our students to independently acquire knowledge with the help of information technology. This we propose will be done by trimming the amount of knowledge to be transmitted ... down to fundamentals and principles, emphasising practical application while more time and attention can be devoted to exercises that train students in independent and self-directed learning such as projects, research, field work and open-ended experiments in the laboratories.*

Learner-centred approaches, such as the use of projects and field work, are attracting increasing attention, and these are directly responsive to 'client' needs. In a multi-disciplinary research project on educational objectives and teaching methods at NUS, findings have indicated that teachers and students alike felt that project work, tutorials, and assignments are most productive for the development of analytical and critical thinking, practical application and independent learning skills (Pan, Betts & Liow, 1991). NUS strongly subscribes to the belief that "a personalized approach to teaching is essential if we are to upgrade the quality of education" (Small Group Teaching, 1986), and places great emphasis on small group work, both in regular courses as well as in special programs such as the 'Talent Development Programme' where students work very closely with personal mentors. Assessment procedures and instruments have also undergone revision. Examination questions

are designed to test for understanding and thoughtful responses rather than recall and repetition. Continuous assessment has been emphasized, and reflects 20% - 100% of the final course grade. Alternatives to the traditional three hour final examination are also being actively explored, with open book examinations being one of them. The past decade has seen marked interest in modifying and extending the repertoire of instructional skills and methodologies. Such innovations make heavy demands on students, teachers and administrators, but they are imperative for significant changes and improvements in learning. They are also demanding in terms of resources, especially where investment in hardware is involved.

Recent years have seen increased and dynamic activity with regard to plugging education into the IT (Information Technology) world. With its increasing accessibility and robustness, IT has become a feasible and attractive tool for broad use in education. In Singapore, the government has provided leadership in setting directions and in furnishing the resources. The MOE is spending $1.5M (Singaporean) to equip schools with computers. Through agencies such as the National Science and Technology Board (NSTB) and National Computer Board (NCB), the MOE has set in motion a number of projects. By 1997, the 'Accelerating the use of IT in Primary Schools' project will provide these schools with multi-media computers to ensure that all pupils will be computer literate. As well, this project will enable more effective teaching/learning. Five secondary schools are currently piloting the 'Teachers and Students Workbench'. This is an IT2000 flagship project undertaken by the Information Technology Institute (ITI) for the Ministry of Education. It will provide a complete and integrated teaching and learning environment with access to a rich depository of multimedia courseware and electronic library. Teaching laboratories equipped with networked work stations support this resource-based and collaborative learning which, reportedly, is enthusiastically received by its pioneer users.

Noteworthy is the concern for creating a holistic approach which embraces not only the hardware, such as power/physical infrastructure, technology integration, and content security, but also pedagogy and teacher development. Also noteworthy are the efforts to create access points in public areas and provide on-line and digital multimedia content through liaison with various content publishers and developers. Such out-of-school access will encourage the habit of independent discovery learning. As Gan Boon San (1996, p. 8), Deputy Director of the Education Cluster at the National Computer Board, stated: "we want to leverage on the power of Information Technology..., not just for formal education but also for life-long learning."

At the National University of Singapore there is a high-level IT steering committee that actively promotes university-wide use of IT in teaching/learning. All staff are equipped with individual work stations and there are a number of student PC clusters with multimedia capability throughout the campus. These are linked to the NUS intranet as well as the Internet. Media for teaching and learning within this networked community include: lecture-on-demand video server, Web-based course notes, electronic discussion groups, and multimedia and CD-Rom packages. Video-conferencing has been in use for some years and desktop video-conferencing facilities are expected to be readily available very soon. These initiatives involve not only

infrastructure and hardware provisions but also careful attention to the 'software' side, including support for relevant research and intensifying education development and manpower training though the NUS Centre for Development of Teaching & Learning. The goal is to empower students to become more efficient learners who are then able to manage their own learning as a lifelong venture.

NUS has also created the Office for Continuing Education which has assumed the responsibilities of the previous Department of Extramural Studies. This new office seeks to strengthen the university-community interface and coordinate the diverse extension programs mounted by different academic departments on campus. Other Singaporean 'service providers' — participants in continuing education and training — consist of government ministries, statutory boards, voluntary agencies, commercial enterprises and professional associations. Specific examples include the following:

- the Singapore Open University Degree Programme, which was established in 1993 in order to allow working adults to read for a university degree on a part-time basis, and which is expected to register more than 6000 students by 2002;
- the Institute of Technical Education (ITE), which provides a range of post-compulsory education options related to pre-employment workforce training, and apprenticeship training for school-leavers as well as in-employment upgrading programs for workers;
- the Singapore Productivity and Standards Board, which provides structured on-the-job (OJT) training related to the OJT 2000 Plan;
- the Singapore Professional Centre, founded with a grant from the Commonwealth Foundation, and which now has 31 member associations with a total membership of more than 12000 professionals;
- Singapore Cable Vision and its education channel which broadcasts with input from the National University of Singapore, Nanyang Technological University, and the Ministry of Health;
- other non-governmental organizations such as the Chinese Development Assistance Council (CDAC), Singapore Indians Association (SINDA), and Mendaki (Malay Community organization), which offer a range of remedial and enrichment programs.

Need

Delivering the Ruth Wong Memorial Lecture in Singapore in 1987, Malcolm Skilbeck (1987, pp. 10 & 17) clearly enunciated that

> *...a sophisticated and well-resourced education system is probably the best socially adaptive mechanism or instrument we have for enabling us as a world-wide society to cope with...pressures and changes.... We are for the first time I think coming to grips with the reality of lifelong...education....*

There is clear endorsement of this view in Singapore; education is a key item on its

socio-political agenda. As a small country with limited human and other resources, education is essential for social cohesion as well as economic health, and continuing education will ensure the ongoing development of a highly skilled workforce which will sustain Singapore's growth rate and viability.

Maximising human potential through on-going training is among the "3 pillars" underpinning Singapore's success in the twenty-first century.

> *Growth means change. We will not become better off just by doing the same jobs in the same businesses ... we have to learn new skills and absorb new technologies... . Older workers need constant retraining if they are not to stagnate, or worse become redundant... . Singaporeans have the drive to upgrade themselves and are tireless in the pursuit of excellence. Let us give them the opportunity to do so.* (Goh Chok Tong, 1988)

The Ministry of Education (1996) has described and underscored the expertise required of graduates in the twenty-first century. Included are knowledge, skills and values.

Knowledge foundation and attitude
Sufficient fundamental knowledge in the chosen area or discipline which facilitates continual upgrading, and further specialisation and acquisition of multi-disciplinary skills; a proactive mindset and competencies to seek, process and apply information; and a positive attitude towards life-long independent learning.

Generic and critical thinking skills
A high level of generic skills consisting of communication (listening, speaking and writing), teamworking, networking and interpersonal skills; and critical thinking capacity, required for real-life problem solving, consisting of analytical, creative, innovative and systems thinking skills.

Values and social responsibility
A strong sense of social responsibility, a high degree of moral integrity and sensitivity in handling cultural diversity.

The National University of Singapore, as the oldest and most prominent university in the country, is highly responsive to the call for producing such graduates, and recently reiterated its commitment to "enhance NUS as a centre for quality education" (NUS, 1996, p. 12). Various strategies have been identified, including strengthening the teaching-research link, creating knowledge and technology, optimising the use of IT, forging partnerships with public and private-sector organisations, spearheading a responsive continuing education program, and providing quality service to the community. Clearly, NUS shares the vision that continuing education is essential to sustained growth: "the ability to anticipate, to adapt to, and to capitalise on changes in the international environment is, of course, the key for us to stay competitive as a nation" (Lim, 1996).

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In addition to academic and professional development, there is a growing need for personal enrichment learning opportunities. This is a discernible ideological shift: the changing society is reflected in changing expectations including the perception of education as not only for bread-and-butter but also for personal enrichment. Skilbeck (1987, p. 18) has pointed out that continuing education must cater to the masses, and it must include "life enhancing values" and "personal and citizenship education". In fact, Singapore recognised this need some decades ago. The People's Association was formed as a community development agency in 1960, catering mainly to lower income groups through its 28 community centres throughout the island. Today it has grown to 115 considerably upgraded centres which offer courses, talks, workshops, seminars, and exhibitions covering a range of arts, leisure, educational, cultural and sports activities.

POLICY, PRACTICE, PROBLEMS AND POTENTIAL

Implications for policy-makers are self evident. Defining the policies, institutionalizing the practices, resolving the problems, and taking advantage of the potential is the challenge.

Policy

> *As borders come down, governments are having to change how they function [in order] to cope with the increasingly international dimension of policy issues.* (Washington, 1996, p. 24)

Regional Cooperation

In the APEC community, the problems arising from the political, economic and social pluralities are real and sizeable, but, fortunately, there are ameliorating factors such as sound leadership and technological growth. Regional cooperation is necessary to prevent counter-productive and wasteful efforts. This is as true in education as in other domains. Policies that support regional cooperation will benefit all.

A Systems Approach

The need for a systems approach, within the context of regional cooperation, is transparent. As Duguet (1996, p. 4) describes, "system-wide changes are necessary to ensure the quality and coherence of provision, to avoid inefficient use of resources and to take full advantage of advances in pedagogy and in information technology."

A global approach to participation is more likely to yield useable blue-prints. Though cynics may argue that too many players often foul up the game, the counter — and arguably stronger — argument is that inputs from many and the sharing of experiences provide a broader knowledge base which will produce more informed decisions. Complementarity and the avoidance of discrepancies in provisions across member countries, for instance, are more probable than if individual countries chartered their own courses. The same need for coordination exists at the national level. Intranational dialogue and coordination among various participating providers of formal/informal education is, again evidently, a sensible strategy.

Practice

In terms of practice, consideration needs to be given to the micro, or intranational, context, and the macro, or international, context.

Micro/intranational Level

Lifelong learning must be orchestrated vertically and laterally. Provisions need to be made for the vertical stages of learning, at different phases in a person's development and for learning throughout life. Just as important, however, is the monitoring of the lateral inputs by different agencies which contribute to and support lifelong learning at any one stage. Included are formal and non-formal schools, professional associations, and private enterprises. Coherent links between education, training and work will support seamless movement between the three, thereby promoting lifelong development.

Macro/international Level

Within the APEC community, synergistic cooperation can be practised in various ways. Included are sharing of information through conferences, workshops and joint research initiatives, providing support and financial aid, and working and lobbying for common causes. Though there are application challenges when working across cultures, there are enough common denominators for general principles to be shared and value obtained.

Problems

Problems need to be addressed, directly and practically. Some are international in flavour, but many are and remain national or domestic in nature.

Parochialism

While collegiality is recognised as a good idea it is — as Ghandi reportedly answered when asked to comment on Western civilisation — as yet largely an idea. Historical and other differences have resulted in the evolution of different educational systems and infrastructures. This does not serve lifelong learning. Especially in a world of growing mobility, individuals need to be able to plug into any learning system, wherever they may happen to be physically located, and at whatever stage in their lives they happen to be. Some standardisation of educational structures, curriculum and practices is therefore desirable.

The issue of internationalisation is being raised with increasing urgency, and it is being examined in more searching and thorough-going ways. Particularly in the professional disciplines, the issue of internationalisation of curriculum has made itself felt. It is no longer adequate to have student exchanges only for specialised international programs. For knowledge and skills to be transferable, and for learning to continue across geographical boundaries, there must be systems which work together.

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Bench-marking

Assessment of lifelong learning is even more problematic than is assessment within the traditional and more controlled learning environment. With the diversity of providers and programs, how are standards to be measured? Equitable and sensitive mechanisms have to be developed for measuring skills and competencies which are acquired not only through formal but also non-formal learning.

Since lifelong learning emphasises learning as a continuous process, it mitigates, at least ideologically, against traditional summative assessment. In fact, standard definitions of success and failure no longer apply, and assessment as a selection or ranking instrument is unbecoming. How then might learners and their progress be assessed? One suggestion is to introduce individual profiles of achievement. However, the problem then is that assessment becomes much more human resource intensive, and there is a potential for loss of comparable standards. Another suggestion is to have internal certification of achievement coupled with benchmarking fixed to externally and nationally set standards. The hazard here is that this may result in learners taking the line of least resistance, tending not to put themselves to the rigour of being accredited. As with all attempts at balancing the carrot and the stick, this issue requires careful thought and consideration.

Economic Implications

The adoption of recurrent education has major economic implications. For example, it will greatly alter the nature of the labour market and its operations. For the employer it has financial and other serious implications for human resource deployment and training. On the other hand, the economics of an up-to-date and highly trained workforce balance against training and deployment costs.

Who Pays?

Financing lifelong learning is a large undertaking. Is it to be borne by the public sector? By the employers? Or by the individuals? Government and non-governmental bodies will probably be involved, but to what extent? Employers will be involved if it can be profitably rationalised. Rightly, the individuals who stand to gain the most by sustained self-enhancement should be persuaded to bear the bulk, or at least a substantial part, of the cost. Whether individuals are able to afford this, and how they might be helped to do so, are pertinent questions to raise and address.

Balancing Supply and Demand

As mentioned earlier, the current environment is one where lifelong education is more supply-led than demand-driven, the result being that one half of the DAMN cycle outweighs the other.

> *Perhaps policy makers have tended to neglect learning activity unconnected to identifiable educational "supply"... Yet the dividing line between "supplied" education and learning designed by the learners themselves is becoming more blurred, as technologies [which] can allow learners to chart their own course through well-designed study packages proliferate. Policy*

> *makers are now starting to realise the importance of considering a wide range of learning activities if they are to devise effective strategies for creating "learning societies".* (OECD, 1995a, p. 15)

Any imbalance needs to be corrected.

Establishing Common Platforms

IT will be a key element in popularising lifelong learning. One technical difficulty encountered in exploiting new technologies is the inconsistency in policies regarding the hardware and software. Another obstacle is differing languages, and variation in levels of competency in the more common languages. As a result, computer-based learning materials may not enjoy as wide a market as might be desired for optimisation of effort and resources.

Potential

All the issues, opportunities, policies, practices and problems should be examined only within the context of potential. Lifelong learning and APEC, when combined, have enormous potential for individual members and the forum.

Demand and Clientele

The APEC community is a significant force and many see it as, arguably, the most important trade grouping in the world.

> *[It] brings together three major economies in the world — Japan, China and the U.S. — within a collegial and cooperative framework. APEC members share enough common interests...* (Lee, 1996)

With the Pacific Rim being a high growth area, the region enjoys a degree of vibrancy which augurs well for its undertakings. This is all the more so when the undertaking is one whose importance is as universally acknowledged as is the case with lifelong learning. APEC's success in the economic arena must be understood to rest, now and in the future, with the development of education, and lifelong learning in particular. The literacy rate within APEC is generally high, and demand for education continues to grow. In Singapore, for instance, over the past five years the percentage of the population receiving an upper secondary education has increased from 11% to 16%, while 7% as compared with 4% are now receiving university education (Leong & Leow, 1996, p. 37). This is, of course, just the front end of the tidal wave of non-formal, re-training, informal, on-the-job, leisure, upgrading and other learning activities that are demanded in increasing quantities, in a variety of delivery modes, and in many different places for all persons.

Historical and Cultural Advantage

Traditionally, Asian countries have a learning culture that instills discipline, diligence and dedication. The rigorous demands of a highly competitive society produce students who are quick to grasp the essentials. The challenge for policy makers and

educators is to create incentives for investing in lifelong learning. Once those are clearly established, learners will quickly learn to do the necessary.

Another factor working to our advantage might be "the tradition of centralised control that [Singapore has] and that all the Australian states systems have had throughout the whole of their history" (Skilbeck, 1987, p. 18). In this regard, policy-makers are therefore invested with a great deal of influence, and decisions can generally be quickly and efficiently implemented. Non-Asian economies, and those which do not have centralized decision making capacity in terms of educational systems, may be, perhaps even seriously, disadvantaged.

Partnership Capability

With political and economic barriers being lowered, there is much greater opportunity for trans-border partnerships within the region. The rapid growth of IT and the development of the information superhighway, which transcends spatial divisions, give cause for optimism, at least within the region.

Clearly, there is tremendous potential for knowledge, skill and technology transfer. What is crucial — here as with other consortiums, and as in APEC's agenda for free trade — is cooperation and coordination.

> ***A strategy for life-long learning involves many participants and requires a rethinking of roles and responsibilities. A field that is already complex becomes all the more so because of the variety of the contents, media, methods and settings of learning, as well as the involvement of a large number of institutions and individuals... In an increasingly interdependent world, individual choices as well as collective policy decisions must draw on information, research, evaluation and analyses that go beyond national frontiers.*** (Duguet, 1996, p. 5)

Ignoring the need for research, commitment, careful consideration and direction will likely produce systemic clashes that frustrate our efforts and waste our energies in a quite different and unproductive DAMN cycle. The opportunity is upon us, but it is we who must seize it.

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